

UDC 546.681.3'824:542.915

USSR

SPIRIDONOV, F. M., ROZDIN, I. A., SOTNIKOVA, M. N., KOMISSAROVA, L. N., and
PLYUSHCHEV, V. Ye., Moscow State University imeni M. V. Lomonosov, Moscow
Institute of Fine Chemical Technology imeni M. V. Lomonosov

"Gallium Titanates"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, Vol 7,
No 5, May 71, pp 817-824

Abstract: A detailed study of gallium titanates by the method of roentgenographic analysis is presented. The experimental technique is briefly described. Gallium metatitanates, dititanates, and titanates were considered, and experimental data presented in tabular form show that the first two are formed at 1400°C and the latter at 950°C. The gallium metatitanate is stable at more than 1100°C, and in a metastable state it undergoes a polymorphic transformation at 960°. The dititanate is an unstable compound having a series of polymorphic transformations. The δ-phase (having a deformed rutile lattice) is the most stable gallium titanate. Melting points of gallium titanates are 1590 ± 20°C for $\text{Ga}_2\text{O}_3 \cdot \text{Ti O}_2$; and 1860 ± 50°C for the δ-phase.

1/1

Instrumentation and Equipment

UPC 621.9.048.4

USSR

ROZE, L. V., and BLEYKHMAN, B. I., Riga

"Investigation of Electromachining With Reduced Wear of the Metallic Machining Electrode"

Kishinev, Elektronnaya Obrabotka Materialov, No 2, 1970, pp 10-14

Abstract: A study is made of the schematic of a proposed pulse generator for electromachining which makes it possible to reduce the wear of the metallic machining electrode in a number of cases to practically zero at a machining rate of several hundreds of mm³/min. The physico-technical characteristics of the machining are presented and an analysis is made of the obtained functions. Certain general conditions, which ensure wearless machining with copper electrodes, are determined using quantitative and qualitative methods. Determination is made of the effect of correlation of energy and duration of work pulses on the magnitude of electrode wear. Recommendations are given regarding the use of the generator.

1/1

Biochemistry

USSR

UDC 542.91:541.515:547.824

ROZANTSEV, E. G., SUSKINA, V. I., IVANOV, Yu. A., and KASPRUK, B. I.,
Institute of Chemical Physics, Academy of Sciences USSR

"New Spin Labels and Sounding Markers for Biological Studies"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 73,
pp 1327-1329

Abstract: A series of new stable mono- and biradicals of the iminoxyl type
has been synthesized. The products -- di-2,2,6,6,-tetramethyl-1-oxy-4-
piperidyl esters of various acids -- can be used as spin labels and sounding
markers for biological studies.

1/1

CTP102.0401020

USSR

UDC 547.962

CHUMAKOV, V. M., IVANOV, V. P., YAGUZHINSKIY, L. S., RYZANTSEV, E. G., and
KALMANSON, A. E., Institute of Virology imeni D. I. Ivanovskiy, Academy
of Medical Sciences USSR; Institute of Chemical Physics, Academy of Sciences
USSR; and Interfaculty laboratory of Bioorganic Chemistry, Moscow State
University imeni M. V. Lomonosov, Moscow

"An Investigation of Various Iminoxyl Free Radicals in Biological and
Artificial Membranes by the Method of Erythrocyte Sedimentation Rate"

Moscow, Molekulyarnaya Biologiya, Vol 6, No 2, Mar/Apr 72, pp 240-245

Abstract: The structure and function of lecithin micelles and mitochondrial
membranes were investigated by studying their interaction with iminoxyl spin
labels or free radicals I-V. The ESR / erythrocyte sedimentation rate/
spectra obtained from various types of solutions containing the radicals
and the substances being studied were examined. It was discovered that the
ESR spectrum of the interaction of radical I with lecithin micelles and
mitochondria had both a broad and a narrow signal, indicating that the
radical was localized in two different parts of the membrane (the hydrophilic
and hydrophobic parts). The same type of spectrum was observed for radical
IV, but radicals III and V were localized only in the hydrophilic region of
1/2

USSR

CHUMAKOV, V. M., et al., Molekulyarnaya Biologiya, Vol 6, No 2, Mar/Apr 72,
pp 240-245

(i)

the membranes. All five iminoxyls interacted with the respiratory chain of the mitochondria, resulting in iminoxyl decay, the rate of which was significantly lower in the hydrophobic region. Radical I was used to show that when the mitochondria are energized, the spin labels are transferred from the hydrophobic region to the hydrophilic. Radical I was also used to show that the changes which occur in the lipid part of the mitochondria during energization are qualitatively different from those which occur during reduction of the respiratory chain.

2/2

- 38 -

USSR

KULIKOV, A. V., LIKHTENSHTEYN, G. I., ROZANTSEV, E. G., SUSKINA, V. I., and SHAPIRO, A. B.

"Possibility of Determining the Distance Between Functional Protein Groups by the Spin-Label Method"

Moscow, Biofizika, No 1, 1972, pp 42-48

Abstract: A set of iminoxyl polyradicals with a known structure was used to analyze the possibility of determining the relative position of the spins of iminoxyl fragments from the shape and second moment of the ESR spectra of spin-labeled proteins (egg lysozyme, sperm whale myoglobin, and rabbit muscle myosin) at $T = 77^\circ\text{ K}$. The ESR spectra were found to be sensitive to the distance between spins if it did not exceed 17 to 18 Å. (The method of second moments can be used to estimate the distance between iminoxyl fragments in the 8 to 16 Å interval). The spin-label method was used to estimate the distance between the functional groups in lysozyme (histidine and lysine groups), myoglobin (histidine groups), and myosin (sulphydryl groups). The results in the case of lysozyme and myoglobin were consistent with the X-ray diffraction models of these proteins.

1/1

Organophosphorous Compounds

USSR

UDC 543.51+661.718.1

SHAPIRO, A. B., KROPACHEVA, A. A., SUSKINA, V. I., ROZYNOV, B. V., and
ROZANTSEV, E. G., Institute of Chemical Physics, Academy of Sciences USSR,
and All-Union Institute of Pharmaceutical Chemistry imeni S. Ordzhonikidze

"Mass Spectrometric Study of Ethylenephosphoramide Paramagnetic Derivative"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 4, Apr 71, pp
864-867

Abstract: The authors synthesized previously unknown paramagnetic derivatives
of 2,2,5,5-tetramethylpyrrolidine-1-oxy-3-amide- and 2,2,6,6-tetramethyl-
piperidine-1-oxy-4-oxido-diethylethioc phosphoric acid and made a mass
spectrometric study of their fragmentation by electron impact. A mechanism
is suggested for the decay of molecular ions of ethylenephosphoramide para-
magnetic derivatives.

1/1

Nitrogen Compounds

UDC 538.114.032.72

USSR

STRUKOV, V. B. and ROZHITSKII, E. G.; Institute of Chemical Physics, USSR
Academy of Sciences, Moskovskaya Oblast Branch

"Anisotropic Parameters of the Iminoxyl Radical with N^{15} "

Kiev, Teoreticheskaya i Eksperimental'naya Khimiya, Vol 7, No 2, 1971, pp 249-
253

Abstract: New information on the supramolecular packing and dynamics of polymer molecules can be supplied by the EPR method to study the motions of stable iminoxyl radicals of a certain type in high-molecular compounds. However, the corresponding necessary calculations present very definite methodological difficulties. To avoid this, the authors reduced the originally-used radical, with its N^{14} isotope (spin 1), by the N^{15} isotope (spin 1/2), thus securing a smaller number of necessary equations. It was expected, also, that use of the N^{15} isotope would throw light on the evident defects of the simple isotropic model of radical rotation in solid polymers. The N^{15} radical was synthesized by condensation of chromatographically pure phrone, followed by catalytic oxidation of the resulting triscetoxamine into 2,2',6,6-tetraethyl-4-oxopiperidine-1-oxyl, this being almost identical physically with the N^{14} radical. EPR spectra for the two radicals in polyethylene and glycerine were

1/2

USSR

STERNUKOV, V. B. and ROMANIEV, E. G., Teoreticheskaya i Experimental'naya Khimiya, Vol 7, No 2, 1971, pp 249-253

obtained, showing values for the Fermi interaction and other constants. Use of the $N^{1/2}$ radical was supported both by the easier calculation and by conformity with known physical data.

USSR

UDC 542.91:542.978

ROZANTSEV, E. G., GRIGORYAN, G. L., GUSOVSKAYA, T. P., GODOVIKOV, N. N.,
AND TEPLOV, N. YE., Institute of Chemical Physics, Academy of Sciences USSR
and Institute of Metallorganic Compounds, Academy of Sciences USSR

"Synthesis of Some Spin-labelled Inhibitors and Choline-esterase Substrate"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 71,
pp 2334-2336

Abstract: 1.2 g of 2,2,6,6-tetramethyl-4-chloroacetoxypiperidine-1-oxyl
(I) was dissolved in 8 ml ether, 0.75 g of dimethylaminomethylacetate was
added to it, and the reaction mixture was left standing for one day. The
solvent was evaporated yielding crystalline N,N'-dimethyl-N-acetoxyethyl-N-(4-
(2,2,6,6-tetramethylpiperidin-1-oxyl)carboxymethylammonium chloride m.p.
163.5-165°. Addition of triethylamine to (I) under similar conditions gave
N,N,N,-triethyl-N-(2,2,6,6-tetramethylpiperidin-1-oxyl)carboxymethylammonium
chloride, m.p. 109-111°. A solution of 2 g of (I) in absolute ether was
added slowly with cooling and stirring to 1.55 g 0-ethylmethylchlorophosphonate
and 1.2 g triethylamine in absolute ether. After 24 hrs of standing the
reaction mixture was filtered, the solvent was evaporated and the product --
1/2

- 64 -

USSR

ROZANTSEV, E. G., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya,
No 10, Oct 71, pp 2334-2336

0-ethyl-0-4-(2,2,6,6-tetramethylpiperidin-1-oxy) methylphosphonate crystallized
slowly from hexane. Analogously the 0-p-nitrophenyl-0-4-(2,2,6,6-tetra-
methylpiperidin-1-oxy) methylphosphonate was obtained from 0-p-nitro-
phenylmethylchlorophosphonate, triethylamine and (I).

2/2

Free Radicals

USSR

UDC 541.515.546.17

ROZANTSEV, E. G., and SHOLLE, V. D., Institute of Chemical Physics, Academy of Sciences USSR, Moscow

"Progress of the Chemistry of Nitroxyl Radicals"

Moscow, Uspekhi Khimii, Vol 40, No 3, Mar 71, pp 417-443

Abstract: In this review (283 references) methods of preparation of nitroxyl radicals by the dehydrogenation of hydroxylamines, oxidation of amines, reduction of nitro- and nitrosocompounds, and addition of free radicals to nitrones are considered. Problems pertaining to the stability of nitroxyl radicals are discussed. Data on the reactivity of these radicals in redox reactions, radical reactions, formation of complexes, and reactions without participation of the unpaired electron are reviewed. It is pointed out that non-aromatic nitroxyl radicals are referred to as iminoxyls in the USSR literature.

1/1

1/2 012

UNCLASSIFIED

PROCESSING DATE--23 OCT 70

TITLE--SYNTHESIS AND EPR SPECTRA OF SOME NEW IMINOXY BIRADICALS -U-

AUTHOR--(104)-SHAPIRO, A.B., SUSKINA, V.I., FEDCROVA, V.V., RIZANTSEV, E.G.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 694-6

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--EPR SPECTRUM, MOLECULAR STRUCTURE, ORGANIC SULFUR COMPOUND,
IMINE, FREE RADICAL, CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1777

STEP NO--UR/0052/70/000/003/0694/0695

CIRC ACCESSION NO--AP0123574

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0123574
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MICROFICHE OF ABSTRACT CONTAINS
GRAPHIC INFORMATION. HEATING S(ICH SUB2) SUB2 CO(SUB2 H) SUB2 IN C SUB6
H SUB6 WITH SOCL SUB2 4 HR GAVE THE ACYL DICHLORIDE, WHICH, FREED OF THE
SOLVENT AND RESIDUAL SOCL SUB2 IN VACUO, AND
2,2,6,6, TETRAMETHYL,4, HYDROXYPIPERIDINEOXY RADICAL GAVE AFTER REACTION
62PERCENT I (N EQUALS 2), M. 60.5-1.5DEGREES. SEMILARLY WERE PREPD. I
(N EQUALS 4), M. 71-2DEGREES, 73.8PERCENT; I (N EQUALS 6), 50PERCENT,
DISCUSSED. FACILITY: INST. KHM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/2 018

UNCLASSIFIED

PROCESSING DATE--16OCT70
-U-

TITLE--SPIN PROBE METHOD FOR STUDYING ORIENTED POLYMERS

AUTHOR--(05)-STRYUKOV, V.B., ROZANTSEV, E.G., KASHLINSKIY, A.I., MALTSEVA,
N.G., TIBANOV, I.F.
COUNTRY OF INFO--USSR

R

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(4), 895-7

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, CHEMISTRY, PHYSICS

TOPIC TAGS--AMORPHOUS POLYMER, POLYETHYLENE TEREPHTHALATE, CAPRONE,
CAPROLACTAM, POLYPROPYLENE FIBER, ORGANIC OXYGEN COMPOUND, ROTATION
SPECTRUM, ELECTRON PROBE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/2009

STEP NO--UR70020/70/190/004/0895/0897

CIRC ACCESSION NO--AT0112964

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--16OCT70

2/2 018
CIRC ACCESSION NO--AT0112964
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHANGES OCCURRING IN THE
AMORPHOUS REGIONS OF POLY(ETHYLENE TEREPHTHALATE) (LAVSAN) (I),
POLYCAPROLACTAM (KAPRON) (II), AND POLYPROPYLENE (III) UPON ELONGATION
OF I, II, AND III FIBERS WERE STUDIED BY USING
2,2,6,6TETRAMETHYL,4,OXOPIPERIDINOXY RADICAL (IV) AS A PROBE AT SIMILAR
HIGH RIGIDITY OF ITS AMORPHOUS REGIONS; ON THE OTHER HAND, IN STRETCHED
AND ORIENTED I OR II YARN, IV MOVED RATHER FREELY IN CERTAIN REGIONS OF
THE POLYMER, SUGGESTING THE FORMATION OF MICROCAVITIES IN THE AMORPHOUS
REGION OF THE POLYMER. THE ROTATION OF IV IN III FIBERS WAS GREATLY
INHIBITED (THE ROTATIONAL DIFFUSION COEFF. DECLINED BY A FACTOR OF 10),
INDICATING THAT THE RIGIDITY OF AMORPHOUS REGIONS OF III MARKEDLY
INCREASED DURING THE FORMATION OF ORIENTED FIBERS.
INST. KHM. FIZ., MOSCOW, USSR.

FACILITY:

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--SYNTHESIS AND STRUCTURE OF 1,OXOPIPERIDINIUM TRIBROMIDES -U-

AUTHOR--ZHDANOV, R.I., GOLUBEV, V.A., ROZANTSEV, E.G.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSR, SER. KHIM. 1970, (1), 186-7

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL SYNTHESIS, BROMINATED ORGANIC COMPOUND, MOLECULAR
STRUCTURE, HETEROCYCLIC NITROGEN COMPOUND, THERMAL DECOMPOSITION, UV
SPECTRUM, NMR SPECTRUM, BENZENE DERIVATIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/1596

STEP NO--UR/0062/73/000/001/0136/0167

CIRC ACCESSION NO--APO100209

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0100209

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. REACTION OF I (Z EQUALS CH₂) IN CCL SUB4 WITH BR WITH DRY ICE COOLING GAVE 99PERCENT RED 2,2,6,6, TETRAMETHYL, 1, OXOPIPERIDINE TRIBROMIDE, DECOMPD. 88.5-9.50DEGREES; I (Z EQUALS CHOH) GAVE 2,2,6,6, TETRAMETHYL, 4, HYDROXY, 1, OXOPIPERIDINE TRIBROMIDE, DECOMPD. 188-9DEGREES; I (Z EQUALS CHBr) GAVE 106-7DEGREES; I (Z EQUALS CHOBz) GAVE 2,2,6,6, TETRAMETHYL, 4, BENZYLOXY, 1, OXOPIPERIDINE TRIBROMIDE, DECOMPD. 96-7DEGREES; I (Z EQUALS CO) GAVE 2,2,6,6, TETRAMETHYL, 1,4, DIOXOPIPERIDINE TRIBROMIDE, VIOLET, DECOMPD. 67-80DEGREES. REACTION OF II WITH 8R GAVE DECOMPD. 43-50DEGREES. UV SPECTRAL CURVES OF TYPICAL PRODUCTS ARE SHOWN. THUS I AND II ARE OXIDIZED BY 8R AT LOW TEMP. TO DIAMAGNETIC PRODUCTS WITH 3 BR ATOMS: THE ABOVE STRUCTURES WERE CONFIRMED BY NMR AND IR SPECTRA.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--INTERACTION OF IMINOXYL RADICALS WITH CHLORINE -U-

AUTHOR--GOLUBEV, V.A., ZHDANOV, R.I., ROZANTSEV, E.G.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (1), 184-5

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, ORDNANCE

TOPIC TAGS--IMINE, CHLORINE, HETEROCYCLIC NITROGEN COMPOUND, METHYLENE,
THERMAL DECOMPOSITION, EXPLOSIVE, POLYNUCLEAR HYDROCARBON, ORGANIC NITRO
COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1984/2665

STEP NO--UR/0052/70/000/001/0134/0135

CIRC ACCESSION NO--AP0200269

777777777777 UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--11SEP70

2/2 022

CIRC ACCESSION NO--AP0200269
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADDING CL WITH DRY ICE COOLING TO
1-IN CCL SUB4 GAVE THE FOLLOWING II (Z SHOWN): CH₂SUB2 DECOMPO. 118,
19DEGREES; CHOBZ, DECOMPO. 86 TO 80DEGREES; CHCL, DECOMPO. 130-10DEGREES;
C:O, DECOMPD. AT ROOM TEMP. EXPLOSIVELY. SIMILARLY WAS PREPD. III.
ORANGE SOLID WHICH SLOWLY DECOMPD. AT ROOM TEMP.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--TELOMERIZATION OF TETRAFLUOROETHYLENE BY DIPHENYL DISULFIDE -U-

AUTHOR-(04)-YAKUBOVICH, A.YA., ZAYTSEVA, YE.L., ROZANTSEVA, T.V.
CHICHERINA, I.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHM. 1970, 6(4), 886-7

DATE PUBLISHED-----70

R
SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THIOPHENE, OXIDATION, FLUORINATED ORGANIC COMPOUND,
TAUTOMERISM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1275

CIRC ACCESSION NO--AP0134949

UNCLASSIFIED

STEP NO--UR/0366/T0/006/004/0886/0887

Z/2 017
CIRC ACCESSION NO--AP0134949
UNCLASSIFIED ABSTRACT DATE--13NOV70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE REACTION (AT 175DEGREES)
GAVE 30.3PERCENT PHSCF SUB2 CF SUB2 SPH (I), 8.7PERCENT PHS(CF SUB2)
SUB4 SPH, AND SMALL AMTS. OF PHSCF SUB2 CF SUB2 H (II) AND
2,2,3,3,TETRAFLUORODIHYDROBENZOTHIOPHENE. THE OXION. OF I OR II WITH
CRO SUB3 IN ACOH SOLN. GAVE PHSO SUB2 CF SUB2 SU SUB2 PH OR PHSO
SUB2 CF SUB2 CF SUB2 H, RESP.
FACILITY: FIZ.-KHM. INST. IM.
KARPOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 665.59.620.191/.193

PORUTSKIY, G. V., MAKAROV, I. A., STROMENKO, A. Ye., and ROZDAYBEDIN, A. S.,
All Union Scientific Research Institute of Petrochemistry, Main Petroleum
Chemistry Industry, UkrSSR

"Preparation of Sea Water and Corrosion of the Equipment of Petroleum Plants"

Kiev, Neftyanaya i Gazovaya Promyshlennost', No 4, 1973, pp 39-41

Abstract: Depending on the conditions of circulation flow rate and temperature of water, chemical and biological changes occur in sea water resulting in sedimentation, corrosion and bioformations. Several factors important in considering sea water for cooling and recirculation have been discussed: index of stability based on the content of CO₂, effect of temperature, content of petrochemicals; all of these factors increase the corrosiveness and lead to higher biological activity in sea water.

1/1

USSR

UDC 616.981.452-084.47

16

AGAFONOV, V. I., BASKIN, Ye. I., VIDOVIN, D. G., VOROB'YCHIKOV, V. M.,
VOROB'YEV, A. A., GAMLESHKO, Kh. P., GAPONCHIKO, K. G., GEFEM, N. Ye., YEVSTIGEYEV,
V. I., YEMEL'YANOVA, O. V., ZENSKOV, Ye. N., IMBALIYEV, O. G., KAMALOV, I. I.,
KVIRIKADZE, V. V., KUTYREV, P. A., MESHNIKOV, O. P., PUSHKAREV, V. P., and
ROZDESTVENSKIY, D. A., Military Medical Academy imeni S. M. Kirov, Leningrad

"A Comparative Efficiency Characteristic of Different Immunization Methods
Against Plague Infection"

Moscow, Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 11, 1972,
pp 106-112

Abstract: Analysis of the available literature data led to the conclusion that oral, aerogenic, and jet immunization methods are the most efficient compared with subcutaneous and skin methods. The average number of patients inoculated against plague infection was 517, 817 (419), and 937 per hr for jet injectors, aerogenic method liquid and dry vaccine, and oral method (tablets), respectively, compared with only 43 and 28 for the subcutaneous and skin methods, respectively.

1/1

USSR

UDC 546.682.3+546.824-31

ROZDIN, I. A., SPIRIDONOV, F. M., KOMISSAROVA, L. N. and PLYUSHCHEV, V. YE..
Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov

"Interaction of Titanium Dioxide With Indium Oxide"

Moscow, Izvestiya Akademii nauk SSSR, Neorganicheskiye materialy, Vol. 7,
No 10, Oct 71, pp 1798-1800

Abstract: Described here are refined conditions for the synthesis of indium titanate as well as the nature of the interaction of In_2O_3 with TiO_2 . The interaction was studied on specimens prepared by the simultaneous precipitation of hydroxides from chloride and nitrate solutions of In and Ti salts using ammonia. The x-ray diffraction study indicates that the reaction product -- indium titanate -- exists in the narrow region near the 50% mol. wt. TiO_2 and is of the formula In_2TiO_5 ; it is classed with the rhombic system with parameters $a_0 = 10.47$; $b_0 = 9.895$; $c_0 = 14.51 \text{\AA}$. In_2TiO_5 is a white substance; it melts at 1750°C . Relative to crystal optics, In_2TiO_5 is

1/2

USSR

ROZDIN, I. A., et al, Izvestiya Akademii nauk SSSR, Neorganicheskiye materialy, Vol 7, No 10, Oct 71, pp 1798-1800

anisotropic with an index of refraction >1.76. After having been fired for 3 hrs, $\text{In}_{2} \text{Ti}_5 \text{O}_5$ will not dissolve in 25% HNO_3 , but almost totally decomposes in HCl (1:1) with In going into the solution and Ti remaining in the precipitate. There are no analogs for the $\text{In}_{2} \text{O}_3 - \text{Ti}_2 \text{O}_5$ system in reference literature. (3 illustrations, 3 bibliographic references).

2/2

"APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002202710012-4

APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002202710012-4"

2/2 013 UNCLASSIFIED PROCESSING DATE--11SEP86

CERC ACCESSION NO--AP0100209

ABSTRACT/EXTRACT--(U) CP-0- ABSTRACT. REACTION OF 1 (Y EQUALS CH₃) IN CCL₄ WITH BR WITH DRY ICE COOLING GAVE MONOBROMIDE RAD 2,2,6,6-TETRAMETHYL, 1, OXOPIPERIDINE TRIBROMIDE. DECOMPO. 88.5-9.5DEGREES; 1 (Z EQUALS CH₃) GAVE 2,2,6,6-TETRAMETHYL, 4, HYDROXY, 1, OXOPIPERIDINE TRIBROMIDE. DECOMPO. 188-190DEGREES; 1 (Z EQUALS CH₂) GAVE 2,2,6,6-TETRAMETHYL, 4, BROMO, 1, OXOPIPERIDINE TRIBROMIDE. DECOMPO. 106-70DEGREES; 1 (Z EQUALS CH₂) GAVE 2,2,6,6-TETRAMETHYL, BENZOXY, 1, OXOPIPERIDINE TRIBROMIDE. DECOMPO. 96-7DEGREES; 1 (I) EQUALS CO₂) GAVE 2,2,6,6-TETRAMETHYL, 1, 4-DIOXOPIPERIDINE TRIBROMIDE. VIOLET, DECOMPO. 67-8DEGREES. REACTION OF 1 (I) WITH BR GAVE BIS[4-(2,2,6,6-TETRAMETHYL, 1, OXOPIPERIDINE TRIBROMIDE)] PHthalate. DECOMPO. 40-5DEGREES. UV SPECTRAL CURVES OF TYPICAL PRODUCTS ARE SHOWN. THUS 1 AND 1' ARE OXIDIZED BY BR AT LOW TEMP. TO DIAGNETIC PRODUCTS WITH 3 BR ATOMS; THE ABOVE STRUCTURES WERE CONFIRMED BY NMR AND IR SPECTRA.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--INTERACTION OF IMINOXYL RADICALS WITH CHLORINE -U-

AUTHOR--GOLUBEV, V.A., ZHDANOV, R.I., ROZANTSEV, E.G.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHM. 1970, (1), 184-5

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, ORDNANCE

TOPIC TAGS--IMINE, CHLORINE, HETEROCYCLIC NITROGEN COMPOUND, METHYLENE, THERMAL DECOMPOSITION, EXPLOSIVE, POLYNUCLEAR HYDROCARBON, ORGANIC NITRO COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

FILSY REEL/FRAME--1984/266 STEP NO--UR/0052/70/000/001/0134/0185

CIRC ACCESSION NO--APO200269

2/2 022

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0200269

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADDING CL WITH DRY ICE COOLING TO
I-IN CCL SUB4 GAVE THE FOLLOWING [I (Z SHOWN): CH₂SUB2 DECOMP'D. 118,
190DEGREES; CHOBZ, DECOMP'D. 86 TO 80DEGREES; CHCL, DECOMP'D. 130-140DEGREES;
C:D, DECOMP'D. AT ROOM TEMP. EXPLOSIVELY. SIMILARLY WAS PREPD. III,
ORANGE SOLID WHICH SLOWLY DECOMP'D. AT ROOM TEMP.

ZZZZZZZZZZZZ

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--TELOMERIZATION OF TETRAFLUOROETHYLENE BY DIPHENYL DISULFIDE -U-

AUTHOR--(04)-YAKUBOVICH, A.YA., ZAYTSEVA, YE.L., ROZANTSEVA, T.V.,
CHICHERINA, I.I.
COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHM. 1970, 6(4), 886-7

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THIOPHENE, OXIDATION, FLUORINATED ORGANIC COMPOUND,
TAUTOMERISM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1275

STEP NO--UR/0366/70/006/004/0886/0887

CIRC ACCESSION NO--AP0134949

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0134949
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE REACTION (AT 175DEGREES)
GAVE 30.3PERCENT PHSCF SUB2 CF SUB2 SPH (I), 8.7PERCENT PHS(CF SUB2)
SUB4 SPH, AND SMALL AMTS. OF PHSCF SUB2 CF SUB2 H (II) AND
2,2,3,3,TETRAFLUOROTHYDROBENZOTHIOPHENE. THE OXION. OF I OR II WITH
CRO SUB3 IN ACOH SOLN. GAVE PHSO SUB2 CF SUB2 CF SUB2 SU SUB2 PH OR PHSC
KARPOVA, MOSCOW, USSR. FACILITY: FIZ.-KHM. INST. IM.

UNCLASSIFIED

USSR

UDC 665.59.620.191/.193

PORUTSKIY, G. V., MAKAROV, I. A., STROMENKO, A. Ye., and ROZDAYBEDIN, A. S.,
All Union Scientific Research Institute of Petrochemistry, Main Petroleum
Chemistry Industry, UkrSSR

"Preparation of Sea Water and Corrosion of the Equipment of Petroleum Plants"

Kiev, Neftyanaya i Gazovaya Promyshlennost', No 4, 1973, pp 39-41

Abstract: Depending on the conditions of circulation flow rate and temperature of water, chemical and biological changes occur in sea water resulting in sedimentation, corrosion and bioformations. Several factors important in considering sea water for cooling and recirculation have been discussed: index of stability based on the content of CO₂, effect of temperature, content of petrochemicals; all of these factors increase the corrosiveness and lead to higher biological activity in sea water.

1/1

USSR

UDC 616.981.452-084.47

AGAFONOV, V. I., RABKIN, Ye. I., VDOVIN, D. G., VOROB'YEV, V. M.,
VOROB'YEV, A. A., GAMLESHKO, K. P., GAPCHIKO, K. G., GEFEN, N. Ye., YEVSTIGNEYEV,
V. I., YEWEL'YANOVA, O. V., ZEMSKOV, Ye. M., ISMAILIEV, O. G., KAMALOV, I. I.,
KVIRIKADZE, V. V., KUTYREV, P. A., MISNIKOV, O. P., PUSHKAREV, V. P., and
ROZDESTVENSKIY, D. A., Military Medical Academy imeni S. M. Kirov, Leningrad

"A Comparative Efficiency Characteristic of Different Immunization Methods
Against Plague Infection"

Moscow, Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 11, 1972,
pp 106-112

Abstract: Analysis of the available literature data led to the conclusion that oral, aerogenic, and jet immunization methods are the most efficient compared with subcutaneous and skin methods. The average number of patients inoculated against plague infection was 517, 817 (419), and 937 per hr for jet injectors, aerogenic method liquid and dry vaccine, and oral method (tablets), respectively, compared with only 43 and 28 for the subcutaneous and skin methods, respectively.

1/1

- 23 -

USSR

UDC 546.682.3+546.824-31

ROZDIN, I. A., SPIRIDONOV, F. M., KOMISSAROVA, L. N. and PLYUSHCHEV, V. YE.,
Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov

"Interaction of Titanium Dioxide With Indium Oxide"

Moscow, Izvestiya Akademii nauk SSSR, Neorganicheskiye materialy, Vol 7,
No 10, Oct 71, pp 1798-1800

Abstract: Described here are refined conditions for the synthesis of indium titanate as well as the nature of the interaction of In_2O_3 with TiO_2 . The interaction was studied on specimens prepared by the simultaneous precipitation of hydroxides from chloride and nitrate solutions of In and Ti salts using ammonia. The x-ray diffraction study indicates that the reaction product -- indium titanate -- exists in the narrow region near the 50% mol. wt. TiO_2 and is of the formula In_2TiO_5 ; it is classed with the rhombic system with parameters $a = 10.47$; $b = 9.095$; $c = 14.51\text{\AA}$. In_2TiO_5 is a white substance; it melts at 1750°C . Relative to crystal optics, In_2TiO_5 is

1/2

USSR

ROZDIN, I. A., et al, Izvestiya Akademii nauk SSSR, Neorganicheskiye materialy, Vol 7, No 10, Oct 71, pp 1798-1800

anisotropic with an index of refraction >1.76. After having been fired for 3 hrs, In_2TiO_5 will not dissolve in 25% HNO_3 but almost totally decomposes in HCl (1:1) with In going into the solution and Ti remaining in the precipitate. There are no analogs for the $\text{In}_2\text{O}_3\text{-TiO}_2$ system in reference literature. (3 illustrations, 3 bibliographic references).

2/2

AA0040642

Roze, L.V.

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, -70

241569 ELECTRO-MACHINE OF METALS by current pulses in
a liquid medium containing carbon, according
to the parent patent No. 196209, is improved by
applying onto the working electrode, prior to the
machining, a protective carbon-containing layer by
pyrolysis of the liquid medium, which may be effected
by heating the working surface of the electrode to
700-1000°C in an electric arc or furnace and, then,
contacting it with the carbon-containing liquid
medium. By this method, the durability of an electrode
made e.g. of copper, is improved and the wearing of
graphitized electrodes is reduced over the whole
range of working conditions. The efficiency of the
electrode is high.

30.3.64 as 891578/25-8 Add to 196209: A.L.LIVSHITS
et alia. METAL-CUTTING MACHINES INST. et al. (28.8.69)
Bul 14/18.4.69. Class 21h. Int.Cl.H 05b.

19750216

18
10

AA0040642

AUTHORS: Livshits, A. L.; Roze, L. V.; Zingerman, A. S.; Kravets, A. T.; Sosenko, A. B.; Aronov, A. I.; and Polotskiy, V. Ye.

Eksperimental'nyy Nauchno - Issledovatel'skiy Institut
Metallorezhuschikh Stankov i Zavod "V E F"

19750217

H

AA0040678

R UR 0482
1-70

Soviet Inventions Illustrated, Section I Chemical, Derwent,

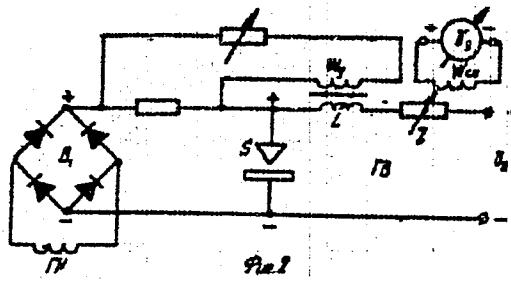
241570 ELECTRIC EROSION DEVICE for machining hard metals submerged in liquids was improved by providing an auxiliary generator to maintain a dynamic equilibrium during the breakdown and re-establishment of a protection layer of the machining electrode. The control elements of this generator are made in the form of an active or inductive and capacitive resistances and are connected in series with the rectifier current source.

18

AUTHORS: Livshits, A. L.; Rose, L. V.; Zingerman, A. S.; Kravets, A. T.; Sosenko, A. B.; Aronov, A. I.; and Polotskiy, V. Ye. (Eksperimental'nyy Nauchno - Issledovatel'skiy Institut Metallorezhushchikh Stankov i Zavod "V E F")

19750284

AA0040678



30.3.64 as 891578/25-8. A.L.LIVSHITS et al. MMTAL
CUTTING MACHINE TOOLS RES. INST. (8.9.69) Bul 14/18.
4.69. Class 2lh. Int.Cl.H 05b.

40

19750285

USSR

UDC: 621.396.6-181.5

ROZE, R. F., KOKORISH, Ye. Yu., LAMEKIN, V. F., PROKHOROV, V. K.,
and ROZHUKLINS, P. P.

"Integrated Microcircuits for Communications Equipment"

Elektron. tekhnika, Nauchno-tekhn. sb. Mikroelektronika (Electronic
Engineering, Scientific-Technical Collection, Microelectronics)
1970, No. 2(23), pp 5-11 (from RZh-Radiotekhnika, No. 3, March 71,
Abstract No. 3V237)

Translation: The directions and perspectives of developments in
hybrid-film and semiconductor microsystems are evaluated. Author's
abstract

1/1

1/2 007

UNCLASSIFIED

PROCESSING DATE--16OCT70

TITLE--ON THE CHARACTER OF SPECTRUM OF THE DIRAC OPERATOR -U-

AUTHOR--ROZE, S.N.

COUNTRY OF INFO--USSR

R

SOURCE--TEORETICHESKAYA I MATEMATICHESKAYA FIZIKA, 1970, VOL 2, NR 3, PP
377-382

DATE PUBLISHED-----70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--HATHEMATIC OPERATOR, FERMI DIRAC STATISTICS, SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/2026

STEP NO--UR/0646/10/002/003/0377/0382

CIRC ACCESSION NO--AP0102055

UNCLASSIFIED

2/2 007 UNCLASSIFIED PROCESSING DATE--16OCT70
CIRC ACCESSION NO--AP0102055

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROOF IS GIVEN THAT THE DIRAC OPERATOR (FORMULA SHOWN ON MICROFICHE) DOES NOT POSSESS THE DISCRETE SPECTRUM LYING ON THE CONTINUOUS ONE UNDER THE CONDITION (FORMULA SHOWN ON MICROFICHE).

UNCLASSIFIED

USSR

UDC 621.385.623.5

BRODULENKO, I.I., GALANIN, A.K., GRIGOROV, N.K., ROZE, YS. A., VOVNERKO, V.L.,
SHMELEV, A. YE.

"Reflex Klystrons With Interchangeable Resonators"

Elektron. tekhnika. Nauch.-tekhn. sb. Elektron. SVCh (Electronics Technology.
Scientific-Technical Collection. Microwave Electronics), 1971, Issue 5, pp 74-82
(from RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10A165)

Translation: The paper considers glass and metalceramic reflex klystrons with interchangeable [a "yemnyy"] resonators, which operate in the shortwave part of the centimeter range of wave lengths with output powers up to 0.5 watt. Metalceramic klystrons with interchangeable resonators assure high output electrical parameters and in comparison with glass klystrons are more resistant to mechanical and climatic effects and are also more promising during utilization of the shortwave part of the centimeter range of wavelengths. Summary.

1/1

- 169 -

1/2 009 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--PREPARATION OF VANADIUM ISOTOPE FOILS -U-

AUTHOR--(03)--KOVALENKO, L.I., ROZEN, A.A., RESHETOVA, L.N.

COUNTRY OF INFO--USSR

R

SOURCE--PRIB. TEKH. EKSP. 1970, 1, 239

DATE PUBLISHED-----70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--METAL FOIL, VANADIUM ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/1885

STEP NO--UR/0120/70/000/001/0239/0239

CIRC ACCESSION NO--AP0108215

UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0108215

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD IS DESCRIBED FOR PREPG. FOILS 1-3 MU THICK FROM SMALL AMTS. OF V SUB2 O SUB5. V SUB2 OF SUB5 WAS REDUCED BY THE CALCITHERMAL METHOD (G. A. MEERSON AND A. N. ZELIKMAN, 1955) WITH SUBSEQUENT IODIZING OF THE METAL TO VI SUB2. VAPORS OF VI SUB2 WERE DISINTEGRATED ON A BE SUBSTRATE HEATED TO SIMILAR TO 1250DEGREESK IN A 2.5 TIMES 10 PRIME NEGATIVE 5 TORR VACUUM TO FORM THE V FOILS. THE FOILS CONTAIN LESS GASEOUS IMPURITIES THAN THE V POWDER. FACILITY: FIZ.-TEKH. INST., KHARKOV, USSR.

UNCLASSIFIED

USSR

R

KOVALENKO, L.I., ROZEN, A. A.

"Production of Thin Tungsten Foils for Nuclear Studies"

Moscow, Pribory i Tekhnika Eksperimenta, p 260

Abstract: A method is described for producing thin ($1-5 \mu$) foils of W by thermal decomposition of WC_{16} on a molybdenum substrate in a vacuum. The method was developed for the production of foils of metal isotopes.

1/1

USSR

UDC 542.61

ROZEN, A. M., and YURKIN, V. G.

"Reaction of Di-2-ethylhexylphosphoric Acid and Its Uranyl Salt With Solvents. IV. Solutions of $(HR)_2$ and $UO_2(HR_2)_2$ in Carbon Tetrachloride"

Leningrad, Radiokhimiya, Vol 15, No 6, 1973, pp 862-864

Abstract: The activity coefficients of di-2-ethylhexylphosphoric acid $(HR)_2$ and its uranyl salt $UO_2(HR_2)_2$ were determined from the vapor densities in CCl_4 solutions at 10, 25, and 40°C. Heats of mixing have been determined. It was shown that large negative nonideality of the solutions with a rather small negative enthalpy of mixing can be explained by the athermal entropy effect due to the dimerization of $(HR)_2$, which leads to enlarged molecules and decreased polarity coupled with lower reactivity towards CCl_4 . The enthalpy of a weak chemical reaction of CCl_4 with $(HR)_2$ and $UO_2(HR_2)_2$ was evaluated.

1/1

- 63 -

USSR

UDC 542.61

ROZEN, A. M., and YURKIN, V. G.

"Reaction of Di-2-ethylhexylphosphoric Acid and Its Uranyl Salts With Solvents. V. Solutions of $(HR)_2$ and $UO_2(HR_2)_2$ in Chloroform"

Leningrad, Radiokhimiya, Vol 15, No 6, 1973, pp 864-866

Abstract: The activity coefficients of di-2-ethylhexylphosphoric acid $(HR)_2$ and its uranyl salt $UO_2(HR_2)_2$ were determined from the vapor densities in $CHCl_3$ solutions at 10, 25, and 40°C. Heats of mixing were determined. It was shown that large negative nonideality of the solutions can be explained by the athermal entropy and chemical reaction of $(HR)_2$ and $UO_2(HR_2)_2$ with $CHCl_3$; the latter is somewhat weaker in comparison to analogous systems with TBP because of the dimerization of $(HR)_2$. The enthalpy of the chemical reaction of $CHCl_3$ with $(HR)_2$ and $UO_2(HR_2)_2$ was evaluated.

1/1

. USSR

UDC 542.61:546.791.6'175

ROZEN, A. M., MARTYNOV, B. V., and ANIKIN, V. I.

"Mechanism of the Extraction of Uranyl Nitrate with Organophosphorus Acids from Nitric Acid Solutions"

Leningrad, Radiokhimiya, Vol 15, No 1, 1973, pp 24-30

Abstract: The mechanism of interaction of uranyl nitrate with di-(2-ethylhexyl) phosphoric acid (I) during extraction of U(IV) from nitric acid solutions with I in CCl_4 was studied. It was shown that the extraction of U(IV) from solutions with HNO_3 concentrations $> 2.0 \text{ M}$ proceeded by an exchange solvate mechanism with the formation of the mixed complex $\text{UO}_2(\text{NO}_3)_2\text{HR}_2(\text{HR})_2$, where R is a di-(2-ethylhexyl)phosphate anion. The extraction constant K was 12,000; the pure solvate complex $\text{UO}_2(\text{NO}_3)_2 \cdot 2\text{HR}$ practically did not form. Extraction from weakly acidic solutions ($\leq 0.4 \text{ M}$) took place by the ion exchange mechanism $\text{UO}_2^{++} + 2(\text{HR})_2 \rightleftharpoons \text{UO}_2(\text{HR})_2 + 2\text{H}^+$ ($\lg D = K + 2 \text{ pH}$). K was 8100. An equation was derived which makes it possible to determine the distribution coefficient D of U(IV) in the entire range of acidities 0-9 M HNO_3 in the extraction with I. The incorrect conclusions with respect to the composition of the complex extracted at acidities $> 2 \text{ N}$ that were made by other authors in previously
1/2

USSR

ROZEN, A. M., et al., Radiokhimiya, Vol 15, No 1, 1973, pp 24-30
published work can be ascribed to a disregard of changes in the activity
coefficient of uranyl nitrate.

2/2

- 22 -

USSR

UDC 628.165

PODBEREZNYY, V. L., and ROZEN, A. M., Sverdlovsk-Moscow

"Technical-Economical Comparison of the Systems of Salt Water Distillation Equipment With Hydrophobic Heat Carrier"

Moscow, Vodosnabzheniye i Sanitarnaya Tekhnika, No 2, 1972, pp 1-4

Abstract: Analysis of four systems for desalination of sea water has been carried out using equipment based on a hydrophobic heat carrier. Basically three types of operations are involved: multistage equipment based on the principle of "repeated vapor heating", multistage equipment with recirculating flow of the hydrophobic heat carrier, and single stage apparatus. Performance of the following systems was analyzed: repeated vapor heating, evaporation equipment with contact heating and parallel feeding, countercurrent contact evaporation, and direct flow contact evaporation. On the basis of technical-economical analysis of the performance a conclusion was reached that the most efficient is the system of direct flow contact evaporation. Heat consumption is by far the least, and the utilization of metallic heat exchange surface and of the construction material is most economical. These advantages outweigh and compensate for somewhat greater use of electric power, sea water, and losses of the hydrophobic carrier.

1/1

USSR

UDC 542.61:541.6

ROZEN, A. M., NIKOLOTOVA, Z. I., KARTASHEVA, N. A., ZARUBIN, A. I., and
TESTERIN, E. G.

"The Relationship Between the Extraction Power of Neutral Phosphorusorganic
Compounds and Their Structure. III. The Effect of Anions. Extraction of
Uranyl Chloride"

Leningrad, Radiokhimiya, Vol 13, No 5, 1971, pp 700-704

Abstract: Extraction of uranyl chloride was studied in a series of neutral phosphorusorganic compounds from tributylphosphate (TBP) to trioctylphosphine oxide (TOPO) in the temperature range 0-70°C. It was determined that effective extraction constants are about 600 fold lower than those of uranyl nitrate. This may be due to the fact that higher hydration of chloride ions results in stronger forces keeping the uranyl chloride in aqueous phase; also the chloride ion is bound much tighter to the uranium than nitrate ion. A linear relationship was found between the logarithm of extraction constants and structural characteristics of the extracting agents: total electronegativity, Taft constants, Kabachnik constants, IR frequency, etc. Heat effects of the extraction were measured and calculated from the temperature function of concentration constants. The calculated effects do not correlate with 1/2

USSR

ROZEN, A. M., et al., Radiokhimiya, Vol 13, No 5, 1971, pp 700-704

structural characteristics and differ considerably from the directly measured values. Concentration constants in this case are not suitable for the calculation of heat effect.

2/2

- 16 -

USSR

UDC 66.048.003.1

PODBEREZNYY, V. L., and ROZEN, A. M.

"Technical-Economic Comparison of Salt Water Distillation Equipment of the Common Type and With Hydrophobic Heat Carrier"

Moscow, Vodosnabzheniye i Sanitarnaya Tekhnika, No 6, 1971, pp 1-4

Abstract: Distillation equipment for desalination of sea water equipped with a hydrophobic heat carrier is comparable in efficiency with common distillation equipment. The cost of the production of distillate using this equipment, with the temperature differences at the end of the heat exchange process being about 2° -- which is quite practical at the current state of art -- is by some 40-50% lower than the cost of producing it by common distillation. The principle of the operation of hydrophobic heat carrier apparatus is described. The difference in the cost is due to much lower expenditure for repairs and devaluation of the equipment. The most crucial disadvantage is the excessive consumption of electric energy caused by the need for relocation of heat carrier from one condensation chamber to another, and the necessity to pulverize it to develop contact surface.

1/1

USSR

UIC: 542.48

PODBEREZHNYY, V. L., ROZEN, A. M., and SIYANKO, K. S.

"Desalination of Sea Water by Means of a Hydrophobic Heat Carrier"

Moscow, Vodosnabzheniye i Sanitarnaya Tekhnika, No 6, 1971, pp 8-13

Abstract: The essence of the desalination process based on hydrophobic heat carriers, in contrast to common distillation equipment, is that metallic heat conductors are replaced by the surface of a movable heat carrier immiscible with water. This makes it possible to carry out all heat exchange processes in direct contact of two phases: water-heat carrier and vapor-heat carrier, simplifying the apparatus, lowering the maintenance problems. In this study laboratory experiments have been utilized to show a feasibility of using simple components for water desalination: triple liquid exchanger, a condenser for mixing and an evaporation chamber. It has been shown that such a system works, and for the conditions studied shows good indicators. The need has been pointed out for developing equipment and finding conditions for industrial application of this process.

1/1

1/2 021

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--USE OF THE NUCLEAR MAGNETIC RESONANCE OF PHOSPHORUS TO STUDY
EXTRACTION BY ORGANOPHOSPHORUS COMPOUNDS. I. EFFECT OF SOLVATION -U-
AUTHOR-(05)-ROZEN, A.M., BORODIN, P.M., NIKOLOTOVA, Z.K., CHIZHIK, V.I.,
SVENTITSKIY, YE.N.

COUNTRY OF INFO--USSR

SOURCE--RADIOKHIMIYA 1970, 12(1), 69-76

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--PHOSPHORUS ISOTOPE, ORGANIC PHOSPHATE, URANIUM COMPOUND,
NUCLEAR MAGNETIC RESONANCE, SPIN LATTICE RELAXATION, SOLVENT EXTRACTION,
SOLVENT ACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1464

CIRC ACCESSION NO--AP0135135

STEP NO--UR/0186/70/012/001/0069/0076

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0135135

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PRIME31 P CHEM. SHIFT DELTA OF BU SUB3 PO SUB4 (TBP), CH SUB3(C SUB5 H SUB11 O)SUB2 PO (DAMP) AND A TRIOCTYLPHOSPHINE OXIDE (TOPO) SOLN. IN CCL SUB4 ARE PLUS 6.3, MINUS 23.3, AND MINUS 38.0 PPM, RESP.; THE PRIME31 P CHEM, SHIFTS OF SOLVATES (DELTA SUB0) PREPD. BY SATN. OF THE ABOVE EXTRACTANTS WITH UO SUB2(NO SUB3)SUB2 ARE PLUS 4.3, MINUS 32.1, AND MINUS 63.8 PPM, RESP. THE SOLVATION SHIFT (DELTA DELTA EQUALS DELTA DELTA SUB0) WAS A LINEAR FUNCTION OF THE NO. OF ESTER GROUPS (R0), AND THE LOG. OF THE EXTN. CONST. (LOG K) INCREASED LINEARLY WITH INCREASING DELTA DELTA, I.E. DELTA DELTA COULD BE USED AS A MEASURE OF THE EXTG. POWER OF ORG. P COMPOS. THE CHEM. SHIFTS ASSOC'D. WITH THE DILN. OF THE ABOVE EXTRACTANTS (AND SOLVATES) WITH DECANE, CCL SUB4, BENZENE AND CHCL SUB3 DID NOT EXCEED 1-3 PPM. THE SPIN LATTICE RELAXATION TIMES (T SUB1) OF PRIME31 P IN TBP, DAMP, THE TBP SOLVATE AND THE DAMP SOLVATE WERE 5.8, 5.3 0.85, AND 0.33 SEC, RESP.; DILN. OF THESE EXTRACTANTS (OR SOLVATES) WITH CCL SUB4 AND CHCL SUB3 INCREASED THE T SUB1, INDICATING THE OCCURRENCE OF INTERACTION ON THE DILN.

UNCLASSIFIED

1/2 017

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--EXTRACTION OF WATER BY TRIBUTYL PHOSPHATE AND SOLUTIONS OF TRIBUTYL
PHOSPHATE IN DILUENTS -U-

AUTHOR-(05)-ROZEN, A.M., KHORKHORINA, L.P., AGASHKINA, G.D., TETERIN,
E.G., MALTSEVA, A.N.

COUNTRY OF INFO--USSR

R

SOURCE--RADIOKHIMIYA 1970, 12(2), 345-55

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC PHOSPHATE, ORGANIC SOLVENT, URANYL NITRATE, ENTROPY,
SOLVENT EXTRACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1461

CIRC ACCESSION NO--AP0135132

UNCLASSIFIED

STEP NO--UR/0186/70/012/002/0345/0355

2/2 017

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0135132
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROPERTIES OF THE SYSTEMS BU
SUB3 PO SUB4 H SUB2 O AND BU SUB3 PO SUB4 H SUB2 O DILUENT WERE STUDIED.
THE SOLVENTS USED WERE KEROSINE, BENZENE, METHYLBENZENE, CHCL SUB3, BU
SUB2 O, CCL SUB4, OR AS MIXTS. WITH BU SUB3 PO SUB4. THE EFFECT OF
URANYL NITRATE ON THE SOLVY. OF WATER IN THE SYSTEM H SUB2 O BU SUB3 PO
SUB4 URANYL NITRATE SOLVATE AND THE PHYS. CHEM. INTERPRETATION OF THE
RESULTS FOR BU SUB3 PO SUB4 H SUB2 O SYSTEM AT VARIOUS TEMPS. ARE
DISCUSSED. THE EXTN. OF H SUB2 O IS DEPENDENT ON AN ENTROPY EFFECT, A
DECREASE IN THE EXCESS ENTROPY IN BU SUB3 PO SUB4 H SUB2 O SOLNS.
APPARENTLY, THE EXTN. OF H SUB2 O IS DEPENDENT ON SOME ORDERING IN THE
ORG. PHASE.

UNCLASSIFIED

1/2 032

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--CALCULATION OF THE HEAT TRANSFER COEFFICIENT IN THE CASE OF SCALE
FORMATION -U-

AUTHOR--(03)-GONIONSKIY, V.TS., GOLUB, S.I., ROZEN, A.M.

R

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, ENERG. TRANSP. 1970, (1), 176-80

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--HEAT TRANSFER COEFFICIENT, HEAT EXCHANGER, METAL SCALING,
METAL TUBE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1521

STEP NO--UR/0281/70/000/001/0176/0180

CIRC ACCESSION NO--AP0120302

UNCLASSIFIED

2/2 032

CIRC ACCESSION NO--AP0120302

UNCLASSIFIED

PROCESSING DATE--23OCT7

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DURING HEATING OF SOLNS. WITH NEG COEFF. OF SOLY., THE RATE OF SCALE FORMATION CHANGES SHARPLY ALONG THE LENGTH OF THE HEATING RUBE OF HEAT EXCHANGERS. AN EQUATION IS PROPOSED FOR CALCG. THE HEAT TRANSFER COEFF. IN THE CASE OF SCALE FORMATION, TAKING INTO ACCOUNT OPERATING TIME, REGIME OF HEAT EXCHANGE, AND PHYS. CHEM. PROPERTIES OF A SCALE. APPLICATION OF THIS EQUATION SUBSTANTIALL INCREASED ACCURACY IN DETG. THE VALUES OF THE HEAT TRANSFER COEFFS. IN THE CASE OF HEATING SOLNS. OF SALTS WITH NEG SOLY. COEFF., WHICH WAS CONFIRMED EXPTL. FOR DESIGNING OF TUBULAR HEAT EXCHANGERS THE MEAN VALUE OF HEAT TRANSFER COEFF. ALONG A HEATING TUBE IS RECOMMENDED INSTEAD OF THE LOCAL VALUE.

UNCLASSIFIED

1/2 015
TITLE--CALCULATION OF EXTRACTION ISOTHERMS TAKING INTO ACCOUNT ANY CHANGE
IN PHASE VOLUMES -U-
AUTHOR--(02)-ROZEN, A.M., RESHETKO, YU.V.

UNCLASSIFIED

PROCESSING DATE--16OCT70

COUNTRY OF INFO--USSR

SOURCE--RADIOKHIMIYA 1970, 12(1), 3-12

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PHOSPHATE, SOLVENT EXTRACTION, URANIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0884

CIRC ACCESSION NO--AP0118053

STEP NO--UR/0186/70/012/001/0003/0012

UNCLASSIFIED

2/2 015

CIRC ACCESSION NO--AP0118053

UNCLASSIFIED

PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CALCN. METHODS (FOR EXTN. ISOTHERMS) WHICH TAKE INTO ACCOUNT THE CHANGES IN VOL., IN CASES IN WHICH THE CONCNS. ARE GIVEN IN MOLAR OR MOLAL UNITS, ARE DESCRIBED IN DETAIL. RECALCN. OF DATA FROM THE LITERATURE SHOWS THAT THE SAME EQUATIONS THAT HAVE BEEN USED FOR MOLAR CONCNS. APPLY ALSO TO MOLAL CONCNS., BUT THE EXTN. CONSTS. MUST BE CHANGED. THE RECALCN. OF EXTN. CONSTS. FOR THE EXTN. OF U FROM HNO SUB3 SOLNS. BY BU SUB3 PO SUB4 IS TREATED AS AN ILLUSTRATIVE EXAMPLE.

UNCLASSIFIED

1/2 007
TITLE--REMOVAL OF DROPLETS FROM VAPOR IN AN EMULSION COLUMN -U-
UNCLASSIFIED PROCESSING DATE--11SEP70

AUTHOR--KOSTIN, V.M., ROZEN, A.M.

COUNTRY OF INFO--USSR

SOURCE--KHIM. PROM. (MOSCOW) 1970, 46(1) 47-9

DATE PUBLISHED-----70

R

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL LABORATORY APPARATUS, EMULSION, CHEMICAL PURIFICATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/0190

CIRC ACCESSION NO--AP0106846

STEP NO--UR/0064/70/046/001/0047/0049

UNCLASSIFIED

2/2 007

CIRC ACCESSION NO--AP0106846

UNCLASSIFIED

PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE REMOVAL OF LIQ. DROPLETS FROM VAPORS IN A PACKED (WITH RASCHIG RINGS) EMULSION COLUMN, THE REMOVAL COEFF. K DEPENDED TO A VERY LITTLE EXTENT ON THE REFLUX RATIO; K RANGED BETWEEN 10 AND 400, AND LOG K INCREASED LINEARLY WHEN THE HEIGHT OF THE PACKING WAS INCREASED FROM 0.4 TO 1.4 M. THE HYDRAULIC RESISTANCE WAS A LINEAR FUNCTION OF THE HEIGHT OF THE PACKING. IN COMPARISON WITH A TRAY COLUMN, THE EMULSION COLUMN PROVIDED THE SAME DEGREE OF PURIFICATION WHILE REQUIRING ABOUT HALF THE TRAY COLUMN HEIGHT..

UNCLASSIFIED

USSR

Aerosols

UDC 532.529.6

GOLUB, S. I., ROZEN, A. M., VAYSELAT, M. B., and BOTINTSEVA, T. N.,

"The Height to Which Liquid Droplets are Raised in a Vertical Gas Flow"

Moscow, Teoreticheskiy Osnovy Khimicheskoy Tekhnologii, Vol 6, No 3,
May/Jun 72, pp 484-490

Abstract: Equations are derived for computing the height to which droplets formed in bubbling operations are raised in a vertical gas flow, and the effects of some parameters on this height are analyzed. The droplet path can be divided into two regions -- one in which the droplet moves faster than the gas flow and one in which its velocity is lower than the gas flow velocity. The equations relate droplet mass, the vertical component of the droplet's absolute velocity, resistance of the medium, droplet diameter, specific weights of liquid and vapor, relative drop velocity, hydraulic resistance, and gas flow velocity. The dependence of maximum height on droplet diameter is analyzed. Computer analysis of the equations demonstrated that when initial droplet velocity is higher than vapor velocity, the final height increases with increasing droplet diameter, while in the reverse case the final height increases with decreasing droplet diameter. Changes in medium density from 0.05 to 1.3 kg/m³ have little effect on height. The
1/2

USSR

GOLUB, S. I., et al., Teoreticheskiy Osnovy Khimicheskoy Tekhnologii,
Vol 6, No 3, May/ Jun 72, pp 484-490

analysis assumes sphericity of the droplets and neglects the buoyancy of the
carrier gas.

2/2

UDC 541.121

USSR

ROZEN, A. H., NIKOLOTOVA, Z. I., and KARTASHEVA, N. A.

"Regularity of the Extraction by Organic Oxides R_3XO and Eases R_4XNO_3 in the Series N-P-As"

Moscow, Doklady Akademii Nauk SSSR, Vol 209, No 6, Apr 73, pp 1369-1372

Abstract: Changing the structure of the extracting agent shows little effect on the mechanism of extraction; however, with sufficient increase of the basicity of organic oxides, qualitative changes in the mechanism of the extraction may occur. It has been shown in this study that in the acidity range 0.5 to 7 M the extractive capability by the amine mechanism of the extraction of uranium or americium decreases gradually in the series $R_3N \approx$

$R_3NO > R_3AsO$. The extractive power of the oxides by the amine mechanism is symbiotic to their basicity. Nitric acid is extracted in form of the complexes $(HNO_3)_iS$, where S is a molecule of the extract and $i = 1, 2, 3, 4$. Uranyl nitrate, on the basis of spectroscopic data is extracted as a hydrated trinitrate ion. Plutonium is extracted as $[R_4N^+]_2 [Pu(NO_3)_5]^{2-}$.

1/1

- 14 -

ROZEN, B. Ya.

sooth see.

TITLE--DYNAMICS OF ADSORPTION IN THE PRESENCE OF ADSORPTION AND
UNCLASSIFIED PROCESSING DATE--23OCT70
EQUILIBRIUM DIFFUSION KINETICS AT PHASE BOUNDARIES CHARACTERIZED BY A
AUTHOR--(03)-PANCHENKOV, G.M., TSABEK, L.K., ROZEN, I.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHM. 1970, 44(1), 233-6

DATE PUBLISHED----70

R

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ADSORPTION, PHASE EQUILIBRIUM, ISOTHERM, CHROMATOGRAPHY,
LAPLACE TRANSFORM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1424

CIRC ACCESSION NO--AP0116871

UNCLASSIFIED

STEP NO--UR/0076/70/044/001/0233/0236

2/2 020

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0116871

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE GENERAL EQUATION DESCRIBING
THE DYNAMICS OF ADSORPTION IN A CHROMATOGRAPHIC COLUMN (G. N.
PANCHENKOV, ET AL., 1969) WAS SOLVED BY THE INTEGRAL LAPLACE
TRANSFORMATION. THE SOLN. OF THIS EQUATION IS BASED ON THE ASSUMPTION
THAT THE ADSORPTION ISOTHERM IS LINEAR AT PHASE BOUNDARIES. THE
NUMERICAL SOLN. OF THE EQUATION IS POSSIBLE BY MEANS OF SUITABLE
COMPUTERS. FACILITY: MOSK. INST. NEFTEKHIM. GAZOV, PROM. IM.
GUBKINA, MOSCOW, USSR.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--HIGHER FREQUENCY STATIC SUPPLY SOURCES BASED ON MAGNETIC ELEMENTS

-U-
AUTHOR-(04)-ROYZEN, S.S., STEP, F.YU., PANCHENKO, V.A., SAYENKO, V.M.

COUNTRY OF INFO-USSR *R*

SOURCE-MOSCOW, ELEKTRICHESTVO, NO 2, 1970, PP 72-74

DATE PUBLISHED—70

SUBJECT AREAS—ELECTRONICS AND ELECTRICAL ENGR., METHODS AND EQUIPMENT

TOPIC TAGS—FREQUENCY METER, FREQUENCY CONVERTER, HIGH FREQUENCY, MAGNETIC METHOD

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED

PROXY REEL/FRAME—1999/1233

STEP NO--UR/0105/70/000/002/0072/0074

CIRC ACCESSION NO--AP0123197

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--30UCT70

CIRC ACCESSION NO--APO123197

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SHORT ANALYSIS IS MADE OF THE WORKING CONDITIONS OF A ONE STAGE, MAGNETIC OCTUPLE FREQUENCY METER. THIS SERVES AS THE BASIS FOR INDUSTRIAL, STATIC FREQUENCY CONVERTERS (50-400 CPS) OF THE PCHMS SERIES. ORIGINAL ARTICLE: TWO ILLUSTRATIONS AND FOUR BIBLIOGRAPHIC ENTRIES.

UNCLASSIFIED

USSR

UDC: 518.9

ROZEN, V. V.

"Application of the Theory of Binary Relations to the General Theory of Games"

V sb. Mat. metody resheniya ekon. zadach (Mathematical Methods of Solving Economic Problems--collection of works), Novosibirsk, "Nauka", 1971, pp 127-152 (from RZh-Kibernetika, no 9, Abstract No 9V472)

Translation: A detailed exposition of results elucidated in previous works (Abstracts of the First All-Union Conference on the Theory of Games, Yerevan, 1968; Mathematical Models and Methods in Socioeconomic Research, Novosibirsk, 1968; RZh-Mat, 1970, 8V257; 1971, 3V306). The idea advanced by Berzh [transliterated from the Russian] on considering relations of preference of positions instead of preference functions and on guaranteeing the accessibility of positions (RZhMat, 1962; 6v338) is developed for games on graphs. The concept of gain is generalized as well as the minimax relation for two-person games. Satisfaction of the generalized minimax relation is proved in several instances.
I. Brublevskaya.

1/1

UDC 518.9

USSR

ROZEN, V. V.

"Estimating the Number of Strategies of a Guarantee Program"

Mat. Vopr. Formir. Ekon. Modeley, [Mathematical Problems of the Formation of Economic Models--Collection of Works], Novosibirsk, 1970, pp 103-109, [Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. 5V515 by I. Romanovskiy].

Translation: The program of a player in a game on a graph refers to the set of his pure strategies and the indicator function determining the selection of one of these strategies at each step in the game on the basis of the pre-history of the game. The number of strategies in a program having certain properties of accessibility of points on the graph is estimated.

1/1

USSR

R

UDC 621.396.662.4.042.15

ROZENBAUM, L. B., GUTNER, B. M.

"Using Magnetic Disaccommodation for Increasing the Tuning Rate of Ferrite Cores"

Moscow, Radiotekhnika, Vol 25, No 8, 1970, pp 98-102

Abstract: In many high-frequency devices, rapid tuning is obtained by magnetizing the ferrites in the oscillatory circuits with a field varying in time according to a particular law. Modern accelerators of charged particles require a tuning rate on the order of 10^3 - 10^4 MHz per second, where the rate of change of the magnetizing field may be as much as 10^4 - 10^5 oersteds per second. While there are various methods for increasing the tuning rate, they are all subject to an upper limit. In this paper, however, the authors propose a method through which this limit is transcended, or, what amounts to the same thing, through which a given tuning rate can be attained at a much lower rate of change of the magnetizing field. The authors discuss experimental results for ferrites of the 35NN type with an initial tuning frequency of 35 MHz and a varying field rate of 50 kiloersteds per second. It is found that the disaccommodation component may lead to a situation in which the tuning velocity at the beginning of a cycle is negative, a situation, moreover, which is true of the 35NN-P ferrite as used in the accelerating synchrotron proton resonators of 76 billion ev in Serpukhov. 1/1

USSR

UDC: 621.318.13

ROZENBAUM, L. B. and TEMKIN, A. S.

"New Parameter of Magnetically Soft Ferrites Designed for Tuning Circuits and Resonators"

Elektron. tekhnika. Nauchno-tehn. sb. Ferrit. tekhn. (Electronic Engineering, Scientific-Technical Collection, Ferrite Techniques) 1970, No. 4(26), pp 45-52 (from RZh-Radiotekhnika, No. 3, March 71 Abstract No. 3B170)

Translation: A new parameter is proposed which characterizes the delay in reversing the magnetic permeability of ferrites with a rapid change in the magnetizing field. Resume

1/1

- 37 -

USSR

UDC 681.5.06:51

NEVEL'SKIY, P. B., ROZENBAUM, M. D.

"Information Measurements in Special Languages"

Probl. Bioniki. Resp. Mezhved. Nauchno-tehn. Sb. [Problems of Bionics, Republic Interdepartmental Scientific and Technical Collection], No 4, 1970, pp 94-97, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V596 by the authors).

Translation: The problem of communications between man and machine in the case of the use of natural languages is studied, setting the problem of measurement of the information parameters of special business languages. Experiments on estimation of the subjective entropy and redundancy of a special language using the guessing method are described. Results are presented from experiments showing that the high information content of special languages is combined with extremely low subjective entropy and high redundancy of these languages for their carriers, which is apparently related to knowledge of the limited special dictionary. The possibility is suggested of using this factor in solving problems of communications between man and machine.

UDC: 51

USSR

ROZENBERG, A. A.

"The Method of Multistage Tests in Checking Reliability"

V sb. Prikl. zadachi tekhn. kibernetiki (Applied Problems of Technical Cybernetics--collection of works), Kiev, "Nauk. dumka", 1972, pp 160-167 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V460)

[No abstract]

1/1

- 31 -

UDC 518.5:681.3.06

USSR

BOYCHUK, I. N., ROZENBERG, A. A.

"Solution of One Geometric Problem in the Automation of Program Preparation"

Sredstva Tekhn. Kibernet. [Engineering Cybernetics Equipment -- Collection of Works], Kiev, Tekhnika Press, 1970, pp 22-26, (Translated from Referativnyy Zhurnal, Kibernetika, No 10, 1971, Abstract No 10 V817, unsigned).

Translation: The preparation of programs for machine tools with programmed control is an extremely cumbersome process, particularly for parts with complex configuration, worked on milling machines. A set of problems must be solved which can be divided into technological (determination of types and sequences of processing, calculation of cutting modes, etc.) and geometric (calculation of trajectory of part processing). The study of blueprints of complex configuration parts to be subjected to mechanical working on a milling machine has shown that the contours of over 90% of parts are formed of combinations of two simple geometric elements -- straight line sectors and circular arcs. This article suggests a method for determination of the membership of the extreme points of a circular arc based on the utilization of a minimized Boolean function for reduction of the total number of all possible versions of arcs defined by various positions of the beginning and ending points of the arc to the minimum number of types. The article also presents an algorithm for determination of the extreme points suitable for realization on any universal computer.

1/2 015 UNCLASSIFIED PROCESSING DATE--09 OCT 70
TITLE--EPIDEMIOLOGY OF DIPHYLLOBOTRIASIS AND EPIDEMIOLOGICAL
EFFECTIVENESS OF SANITATION MEASURES IN A FOCUS IN THE NORTHERN PART OF
AUTHOR--ROZENBERG, A.I.

COUNTRY OF INFO--USSR R

SOURCE--MEDITSINSKAYA PARAZITOLOGIYA I PARAZITARNYYE BOLENZI, 1970, VOL
39, NR 2, PP 154-157
DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PARASITIC DISEASE, DISEASE INCIDENCE, WATER POLLUTION,
EPIDEMIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/1444

STEP NO--UR/0358/70/039/002/0154/0157

CIRC ACCESSION NO--AP0109504
UNCLASSIFIED

UDC:536.468

USSR

ROZENBERG, A. S., ARSEN'YEV, Yu. N., VORONKOV, V. G., Moscow

"Ignition of Gaseous Mixtures of Hydrazoic Acid With Various Diluents"

Novosibirsk, Fizika Goreniva i Vzryva, Vol. 6, No. 3, Sep 70, pp. 302-310

Abstract: Most studies on hydrazoic acid have noted that there is a pressure threshold, below which decomposition of HN₃ occurs at a measurable rate. In recent times, the value of this threshold has been measured and its dependence on the power of the igniting spark has been demonstrated. This report presents the results of studies on the concentration boundaries of spark ignition of pure HN₃ and its mixtures with various diluents. The analysis results in the production of a formula for the concentration boundaries of ignition which is found to describe the experimentally observed dependences well. Qualitative calculations demonstrate that diluents with high Q₁₁ also have high values of the inclination of the slope of the linear portion of the experimental dependence.

UNCLASSIFIED

PROCESSING DATE--09OCT70

2/2 015

CIRC ACCESSION NO--AP0109504
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATIONS OF YALDYGINA AND COWORKERS IN 1959-1960 AND OF THE AUTHORS IN 1962-1965 ELUCIDATED THE EPIDEMIOLOGY OF DIPHYLLOBOTRIASIS IN A FOCUS OF LAKE RIVER TYPE IN THE NENETSK NATIONAL DISTRICT OF ARKHANGELSK REGION, THE VILLAGE OF VELIKOVKA. APPROVED FOR RELEASE 08/09/2001 CIA-RDP86-00513R002202710012-4 ON HELMINTHOLOGY WERE CARRIED OUT IN THE VILLAGE. HELMINTIZATION AND SANITARY EDUCATION REDUCTION OF DIPHYLLOCOTRIASIS INCIDENCE AMONG REPEATEDLY EXAMINED SUBJECTS FROM 32.4 TO 3.6 PERCENT. IN 1962-1965 THE AUTHORS DEMONSTRATED HIGH EPIDEMIOLOGICAL EFFECTIVENESS OF THE ABOVE SANITATION MEASURES MANIFESTED IN A RELATIVELY SMALL RISE OF THE LEVEL OF DIPHYLLOBOTRIASIS INCIDENCE IN 2 AND 4 YEARS AFTER COMPLETION OF THESE MEASURES AS WELL AS IN A SHARP REDUCTION OF THE INTENSITY OF INVASION, CONTAMINATION WITH D. LATUM EGGS OF THE COASTAL ZONE OF WATER RESERVOIRS IN THE TERRITORY OF THE VILLAGE, A REDUCTION IN THE INFECTION WITH PLEROCERCIDS OF D. LATUM OF PIKE AND BURLOT OF THE VISKI RIVER. UTILIZATION OF RAW FISH PRODUCTS BY THE INHABITANTS OF THE VILLAGE WAS REDUCED CONSIDERABLY.

FACILITY: OTDEL PARAZITOLOGII SANEPIDSTANTSII KARELSKOY ASSR.

UNCLASSIFIED

ROZENBERG, A.S.

RAN / K. N. RCO / S. MRD. 73
JUN 1972

(4)

Bazrykin, V. V., V. A. Veretennikov,
Yu. M. Grigor'yev, and A. S. Rozensberg.
Results of Third All-Union Symposium on
combustion and explosions. FGIV, no. 4,

1971, 616-618.

The Symposium, which took place July 5-10, 1971 in Leningrad, was attended by 730 representatives from 210 organizations. There were three sections: on combustion, detonation, and kinetics. Three plenary reports and 154 section reports were presented. The plenary sessions reports were presented by Yu. B. Zeitlerich [The contribution of D. A. Frank-Kamenetskii to the theory of combustion], V. V. Pomeranzhev [Atomization, evaporation, and combustion of liquid fuel], and A. D. Margolin [The present status and some problems of the combustion theory of condensed systems].

At the section on combustion, 79 reports were presented in 9 subject areas: ignition in condensed systems, steady combustion of condensed systems, combustion stability and non-steady combustion of condensed systems, combustion in dispersion systems, flame propagation kinetics in gases, laminar combustion of gases, combustion of organic liquids in gases, turbulent combustion of gases, and combustion in supersonic flow. The problem of supersonic combustion was included for the first time in the program of the All-Union Symposium.

At the section on detonation, 36 reports were presented in 4 subject areas: detonation of condensed explosives, detonation in gaseous and heterogeneous systems, sensitivity of explosives to mechanical interactions, and physico-chemical transformations of materials from shock wave effects. In addition to reports on the continuation of theoretical and experimental research on shock wave propagation in condensed media, other reports in this section dealt with

1/2 018 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--INFLUENCE OF MUTUAL INHIBITION DURING THE SIMULTANEOUS
POLYMERIZATION OF CYCLIC ETHERS AND CYCLIC ACETALS -U-
AUTHOR--(04)-YEKFREMOVA, A.I., PUNOMAREVA, T.I., ROZENBERG, B.A.,
YENIKOLOPYAN, N.S.
COUNTRY OF INFO--USSR *R*
SOURCE--DUKL. AKAD. NAUK SSSR 1970, 190(4), 872-5
DATE PUBLISHED-----70

SUBJECT AREAS—CHEMISTRY

TOPIC TAGS—FURAN, ORGANIC OXYGEN COMPOUND, POLYMERIZATION, AROMATIC
ETHER, ACETAL, ORGANOANTIMONY COMPOUND, CATALYST, GAS CHROMATOGRAPHY,
COMPLEX COMPOUND, EXCHANGE REACTION.

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/2012

STEP NO--UR/0020/70/190/004/0872/0875

CIRC ACCESSION NO--AT0112967
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--09OCT70

2/2 018 CIRC ACCESSION NO--AT0112967

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ADDN. OF TETRAHYDROFURAN (I) TO 1,3,2-OXOLANE (III) DECREASES ITS HOMOPOLYMN. RATE IN THE PRESENCE OF ET SUB3 OSBCL SUB6 CATALYST. THE COPOLYMN. OF I WITH II WAS DESCRIBED EARLIER (M. OKADA ET AL., 1965) AND THE REACTIVITY RATIOS WERE DSTD. THE ANAL. OF I AND II CONVERSION RATES, OBTAINED BY THE DILATOMETRIC AND GAS CHROMATOG. METHODS, SHOWS THAT THE ADDN. OF I TO ACTIVATED II IS A FAST REACTION. HOWEVER, THE ADDN. COMPLEX III HAS WEAK C-D PRIME POSITIVE BOND AND UNDERGOES EXCHANGE REACTIONS WITH I MORE READILY THAN COPOLYMN.

FACILITY: INST. KHM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

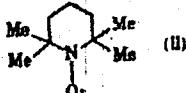
Acc. Nr.

170100194 Abstracting Service
CHEMICAL ABST.

Ref. Code

GR 0020

111959a Morphological features of polyformaldehyde studied by a spin probe method. Stryukov, V. B.; Dubovitskii, A. V.; Rozenberg, B. A.; Enikolopyan, N. S. (Inst. Khim. Fiz., Mosc. cow., USSR). Dokl. Akad. Nauk SSSR 1970, 190(3), 642-4 [Phys. Chem.] (Russ). The EPR spectra of polyformaldehyde (I) sam-



ples contg. II (used as a spin probe) depend on the distribution of II in I, which in turn is dependent on the type of the mol. packing of I amorphous regions. The spectral differences between I prep'd. by the cationic polymn. of trioxane and anionic polymn. of gaseous HCHO, using Ph₃CSbF₆ or Sn stearate, resp., as the catalysts, showed that the former has more compact amorphous regions and it absorbs II slower. CPJR

11

CB 7

REEL/FRAME
19841576

1/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--CALCULATIONS OF MOLECULAR ORBITAL OF COMPLEX MOLECULES. III. GROUP
COEFFICIENTS FOR MOLECULAR INTEGRALS FOR CALCULATING SELF CONSISTENT
AUTHOR--(03)-ROZENBERG, E.L., OOLIN, S.P., DYATKINA, N.YE.

COUNTRY OF INFO--USSR *R*

SOURCE--ZH. STRUKT. KHM. 1970, 11(1), 80-94

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CALCULATION, MOLECULAR ORBITAL, COMPLEX MOLECULE, MOLECULAR
STRUCTURE, MATRIX ELEMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1254

STEP NO--OK/0192/70/011/001/0080/0094

CIRC. ACCESSION NO--AP0128670

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123670

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLES ARE GIVEN OF GROUP COEFFS.
AND TYPES OF APPROPRIATE MOL. INTEGRALS FOR CALC. ALL SELF CONSISTENT
MATRIX ELEMENTS IN MX SUBG MULS. OF OCTAHEDRAL STRUCTURE WITHIN THE
FRAMES OF APPROX. METHODS OF COMPLETE OR PARTIAL DIFFERENTIAL OVERLAP.

FACILITY: INST. OSHCH. NEORG. KHM. IM. KURNAKOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

LOGAK, L. G., ROZENBERG, G. I., KUSNETSOV-FETISOV, L. I.

"Study of the Mechanism of Adsorption of Nitrogen Dioxide on Silica Gel by IR Spectroscopy. Report III. Desorption of Nitrogen Dioxide Adsorbed by Synthetic Zeolites"

Tr. Kazan. Khim.-tekhnol. In-ta [Works of Kazan Institute of Chemical Technology], No 46, 1971, pp 136-140 (Translated from Referativnyy Zhurnal, Khimiya, No 2, 1972, Abstract No 2 B1389 from the Resume).

Translation: The process of isothermal desorption of NO_2 adsorbed by cylindrical granules of acid-resistant zeolites such as H-mordenite is studied. Only the first portions of adsorbate are easily removed; evacuation for two hours leaves 20-25 mg/g NO_2 on the surface of the adsorbent; this figure is independent of the degree of preceding adsorption. The rate of desorption increases with dealumination of the specimens.

1/1

- 5 -

USSR

VELIKANOV, V. M., ROZENBERG, G. I., KUZNETSOV-FETISOV, L. I.

"Study of the Mechanism of Adsorption of Nitrogen Dioxide on Silica Gel by IR Spectroscopy. Report I. Method and Preliminary Results"

Tr. Kazan. Khim.-tekhnol. In-ta [Works of Kazan Institute of Chemical Technology], No 46, 1971, pp 174-180, (Translated from Referativnyy Zhurnal, Khimiya, No 2, 1972, Abstract No 2 B1387 from the Resumé).

Translation: An installation is created, suitable for measurement of IR spectra of corrosive gases adsorbed on solid adsorbents. A method is developed for production of thin films of silica gel, suitable for the study of processes of adsorption by IR spectroscopy. An absorption band is observed at $1,710 \text{ cm}^{-1}$, belonging to the product of adsorption of NO_2 and N_2O_4 on silica gel, and an attempt is made to attribute it.

1/1

- 6 -

USSR

ULC: 621.438-253.5.001.5

ROZENBERG, G. SH., AYKASHEV, F. I.

"Determination of the Coefficients of Energy Losses in the Impeller of a Reversible Centripetal Radial-Axial Flow Turbine With Off-Design Angles of Incidence"

Tr. TSNII Mor. Flota (Works of the Central Scientific Research Institute of the Merchant Marine), No 148, 1971, pp 28-35 (from Referativnyy Zhurnal, Turbostroyeniye, No 1, Jan 72, Abstract No 1.49.110)

Translation: The loss coefficient in an impeller is presented with off-design angles of incidence, determined on the basis of measurements on the rotating impeller in terms of relative motion. Calculation methods for determining the coefficient of entry losses for off-design angles of incidence are analyzed. The calculation results are compared with experimental data. On the basis of experimental data, the accuracy of the calculation of loss coefficients in the impeller for variable regimes is increased. Four figures. Two tables. Seven references.

1/1

- 135 -

1/3 049

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--LUNAR ATMOSPHERIC PRESSURE DETERMINED FROM A TWILIGHT PHOTOGRAPH
TAKEN BY SURVEYOR VII. LUNAR ATMOSPHERIC PRESSURE DETERMINED FROM
AUTHOR--ROZENBERG, G.V.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, ASTRONOMICHESKIY ZHURNAL, VOL 47, NR 2, 1970, PP 449-452

DATE PUBLISHED----70

SUBJECT AREAS--METHODS AND EQUIPMENT, SPACE TECHNOLOGY,
ASTRONOMY, ASTROPHYSICS

TOPIC TAGS--TWILIGHT, PHOTOGRAPH, LUNAR ATMOSPHERE, PRESSURE, ARTIFICIAL
EARTH SATELLITE, SPACEBORNE PHOTOGRAPHY, OPTIC THICKNESS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0241

STEP NO--UR/0033/70/047/002/0449/0452

CIRC ACCESSION NO--AP0127844

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--30OCT70

2/3 049

CIRC ACCESSION NU--AP0127844

ABSTRACT/EXTRACT—(U) GP-0— ABSTRACT. FOR PLANETS HAVING A HIGHLY RAREFIED ATMOSPHERE THE EXISTENCE AND PROPERTIES OF THE LATTER IS MANIFESTED MOST CLEARLY IN TWILIGHT PHENOMENA AND THIS FACT CAN BE USED IN STUDYING SUCH ATMOSPHERES. THIS PAPER SHOWS HOW A PICTURE FOR THE LUNAR TWILIGHT TAKEN BY SURVEYOR VII ON 28 JANUARY 1968 CAN BE USED IN DETERMINING LUNAR ATMOSPHERIC PRESSURE. IT IS POSSIBLE TO NEGLECT REFRACTION AND ATTENUATION OF LIGHT RAYS BY THE ATMOSPHERE, THAT IS, IT CAN BE ASSUMED THAT THE EFFECTIVE ALTITUDE h OF THE BOUNDARY OF THE LUNAR SHADOW COINCIDES WITH ITS GEOMETRIC ALTITUDE h . AS A RESULT, THE BRIGHTNESS B OF THE LUNAR TWILIGHT SKY AT THE VERY HORIZON UNDER THE OBSERVATION CONDITIONS UNDER WHICH THE SURVEYOR IMAGE WAS OBTAINED CAN BE WRITTEN IN THE FORM $B = S_{\text{SUN}} F(\phi) M t(h)^{-4} \pi$, WHERE $t(h)$ IS THE VERTICAL OPTICAL THICKNESS OF THE AIR OVER THE LEVEL h AT WHICH THE LINE OF SIGHT INTERSECTS THE BOUNDARY OF THE SHADOW, S_{SUN} IS THE SOLAR CONSTANT FOR THE EFFECTIVE SPECTRAL REGION, $F(\phi)$ IS THE SCATTERING INDICATRIX FOR THE SCATTERING ANGLE ϕ IS CONGRUENT TO χ_1 (χ_1 IS THE ANGLE OF SOLAR DEPRESSION) AND M IS THE AIR MASS FOR THE LINE OF SIGHT AT THE POINT OF ITS INTERSECTION WITH THE BOUNDARY OF THE LUNAR SHADOW. IT IS POSSIBLE TO ESTIMATE THE UPPER LIMIT OF BRIGHTNESS OF THE TWILIGHT AUREOLE DIRECTLY OVER THE OUTER BOUNDARY OF THE LIGHT BAND ON THE ANALYZED PHOTOGRAPH, GIVING THE UPPER ESTIMATE OF PRESSURE AT THE CORRESPONDING ALTITUDE. THE SOUGHT FOR SKY BRIGHTNESS, INDEPENDENTLY OF ITS NATURE, SATISFIES THE RELATION $B < 1.5 \times 10^3$ PRIME³ B_{SUBNIGHT} , WHERE B_{SUBNIGHT} IS THE BRIGHTNESS OF THE LUNAR NIGHTTIME SKY.

UNCLASSIFIED

3/3 049

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--APO127844

ABSTRACT/EXTRACT--DUE TO THE SMALLNESS OF XI, AND THE ANGULAR ALTITUDE OF THE LIGHT BAND, IT CAN BE ASSUMED THAT M IS CONGRUENT TO 40. FROM (1) AND (2) T (H IS CONGRUENT TO 10 M) SMALLER THAN 300 B SUBNIGHT-S SUN.

ACCORDING TO TERRESTRIAL OBSERVATIONS OF THE TWILIGHT SKY, AT THE ZENITH IT MUST BE ASSUMED THAT THE VISUAL BRIGHTNESS OF SINGLY SCATTERED SUNLIGHT APPROACHES THE BRIGHTNESS OF THE NIGHT SKY WHEN BAR H SUBTER IS CONGRUENT TO 150 KM; IT MUST BE ASSUMED THAT M EQUALS 1 AND F (PHI) IS CONGRUENT TO THREE FOURTHS; HENCE FOR THE EARTH'S ATMOSPHERE T TER (H SUBTER IS CONGRUENT TO 150 KM) IS CONGRUENT 16 B SUBNIGHT-S SUN.

COMPARING (3) AND (4), ONE FINDS T (H IS CONGRUENT TO 10 M) SMALLER THAN 20 T TER (BAR H SUBTER IS CONGRUENT TO 150 KM OR T (H IS CONGRUENT TO 10 M) SMALLER THAN T TER (BAR H SUBTER IS CONGRUENT TO 90 KM). IT THEREFORE FOLLOWS THAT ATMOSPHERIC PRESSURE AT AN ALTITUDE OF ABOUT 10 M ABOVE THE LUNAR SURFACE IS MUCH LESS THAN TERRESTRIAL ATMOSPHERIC PRESSURE AT AN ALTITUDE OF APPROXIMATELY 90 KM, BEING ABOUT 4 DYNES-CM. THIS ESTIMATE IS EXAGGERATED BY AT LEAST 1 1.2-2 ORDERS OF MAGNITUDE.

UNCLASSIFIED

1/2 020

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--CLOUD BRIGHTNESS, REVIEW OF A COMPLEX STUDY -U-

AUTHOR-(04)-ROZENBERG, G.V., ILICH, G.K., MAKAREVICH, S.A., MULLAMAA,
YU.R.
COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, FIZIKA ATMOSFERY I OKEANA, VOL. 6,
MAY 1970, P. 445-467
DATE PUBLISHED---MAY70

SUBJECT AREAS--ATMOSPHERIC SCIENCES

TOPIC TAGS--LIGHT SCATTERING, OPTIC BRIGHTNESS, ATMOSPHERIC CLOUD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO---FD70/605011/F06 STEP NO--UR/0362/70/006/000/0445/0467

CIRC ACCESSION NO--AP0140230

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--APO140230

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE PROPERTIES OF SOME VERY GENERAL ASYMPTOTIC FORMULAS, FOR THE BRIGHTNESS OF THICK LAYERS OF LIGHT SCATTERING MEDIA, WHOSE CORRECTNESS WAS DEMONSTRATED BY PREVIOUS EXPERIMENTS. THE FORMULAS ARE USED IN CALCULATING THE CLOUD BRIGHTNESS AS A FUNCTION OF CLOUD PARAMETERS, ILLUMINATION, AND CONDITIONS OF THE UNDERLYING SURFACE. AN ANALYSIS OF EXTENSIVE EXPERIMENTAL DATA AND CALCULATIONS INDICATE THE EXISTENCE OF A RELATION BETWEEN THE MACROOPTICAL PARAMETERS OF CLOUDS AND THEIR MICROSTRUCTURE. A METHOD IS PROPOSED FOR DETERMINING THE EFFECTS OF THE SPATIAL STRUCTURE OF CLOUDS ON THEIR BRIGHTNESS CHARACTERISTICS AS A FUNCTION OF THE DIMENSIONS OF THE VISUAL FIELD. FACILITY: AKADEMIIA NAUK SSSR, INSTITUT FIZIKI ATMOSFERY, MOSCOW, USSR. FACILITY: AKADEMIIA NAUK BEGORUSSKOI SSR, INSTITUT FIZIKI, MINSK, BELOPUSSIAN SSR; AKADEMIIA NAUK ESTONSKOI SSR, INSTITUT FIZIKI I ASTRONOMII, TARTU, ESTONIAN SSR.

UNCLASSIFIED

Acc. Nr.

AP0050441

Abstracting Service:
CHEMICAL ABST. 5/70

Ref. Code

4R0051

R

✓ 105346g Statistical-electrodynamic content of photometric values and of basic concept of the radiation transfer theory. Rozenberg, G. N. (USSR). *Opt. Spektrosk.* 1970, 28(2), 392-8 (Russ.). A math. anal. is presented from the standpoint of statistical optics of the effect of an electromagnetic field on the photocell. and light energy receivers, with consideration of their final dimensions and the finality of their time const. Basic photometric magnitudes are obtained and the connection between them is detd. A discussion is presented on the basic concepts of the theory of radiation transfer, and the limits of its applicability, and the role of cooperation effects are clarified.

Boris H. Tytell

V

REEL/FRAME
19810420

21
RT

Acc. Nr:

AP0048443

Abstracting Service:

INTERNAT AEROSPACE ABST

Ref. Code:

J-70 U R 0030

A70-25126 # Certain characteristics of light propagation in different layers of the atmosphere (Nekotorye osobennosti rasprostraneniia sveta v razlichnykh sloiakh atmosfery). G. M. Rozenberg, V. I. Tatarskii, and V. I. Dianov-Klokov. Akademii Nauk SSSR, Vestnik, vol. 40, Feb. 1970, p. 21-29. In Russian.

Study of physical phenomena involved in the scattering of light in atmospheric layers, turbulent disturbances of light beams, and light absorption by binary oxygen complexes. Diagrams are presented showing the vertical behavior of the ratio of the scattering coefficient of the dispersed phase to that of the gas phase (wavelength of 0.65 micron); the behavior of the scattering coefficient of atmospheric mist as a function of the relative humidity; and typical spectral relations of the scattering coefficient in the atmospheric transmittance windows for finely and coarsely dispersed atmospheric mist. Comparative graphs of theoretical and experimental mean-square values of the fluctuations of the light intensity logarithm (for a helium-neon laser) and of the mean diameter of a light beam as a function of the meteorological conditions are also given. The importance of considering the influence of binary oxygen complexes (particularly in the ultraviolet) in the construction of optical models of planetary atmospheres is noted.

V.P.

10

12

REEL/FRAME
19800151